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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/679,298	10/07/2003	Tetsuya Kanemaru	053466-0372	3585

22428 7590 09/11/2006

FOLEY AND LARDNER LLP  
SUITE 500  
3000 K STREET NW  
WASHINGTON, DC 20007

EXAMINER

VANIK, DAVID L

ART UNIT	PAPER NUMBER
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1615

DATE MAILED: 09/11/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/679,298

Applicant(s)

KANEMARU ET AL.

Examiner

David L. Vanik

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 03 July 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-8 and 10-20 is/are pending in the application.
- 4a) Of the above claim(s) 1-5 and 12-20 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 6-8, 10-11 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

### DETAILED ACTION

Receipt is acknowledged of the Applicant's Remarks and Amended Claims filed on 7/3/2006.

As a result of Applicant's claim amendments, the 35 USC §102 rejections over US Patent 5,635,250 ('250) are hereby **withdrawn**.

Applicant's arguments and claim amendments see Remarks and Claims, filed on 7/3/2006, with respect to the 35 USC §102 rejections over US Patent 5,635,250 ('250) have been fully considered and are persuasive. The Finality of the 2/2/2006 rejection has been withdrawn.

### NEW REJECTIONS:

The following is a list of maintained rejections:

#### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 7-8 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for a method of producing silicone treated powders

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wherein said powders have an average particle size of not more than 0.1 microns when heated in the second step at a temperature of 270°C for 3 hours and said powders have an average particle size of less than 0.1 microns when heated in the second step at a temperature of 400°C for 3 hours, does not reasonably provide enablement for the a method of producing silicone treated powders wherein said powders have an average particle size of not more than 0.1 microns when heated in the second step at a temperature of 260°C - 350°C for 1-5 hours and said powders have an average particle size of less than 0.1 microns when heated in the second step at a temperature of 330°C - 480°C for 1-5 hours. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to practice the invention commensurate in scope with these claims.

After carefully evaluating the instant specification, the examiner respectfully asserts that one of ordinary skill in the art would be forced to undergo undue experimentation in order to practice the invention commensurate in scope with these claims. Specifically, as set forth in the instant specification, coated powders have an average particle size of not more than 0.1 microns when heated in the second step at a temperature of 270°C for 3 hours or the coated powder can have an average particle size of less than 0.1 microns when heated in the second step at a temperature of 400°C for 3 hours (pages 9 – 17 in the instant specification). After carefully reviewing the instant specification, there is no data indicating that coated powders can have an average particle size of not more than 0.1 microns when heated in the second step at a temperature of 260°C - 350°C for 1-5 hours or that powders can have an average

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particle size of less than 0.1 microns when heated in the second step at a temperature of 330°C - 480°C for 1-5 hours. Moreover, the examiner respectfully points out that the ranges of claims 7-8 overlap. That is, as set forth in the instant claims 7-8, at a temperature of 330°C - 350°C for 1-5 hours, the powder can seemingly have an average particle size of not more than 0.1 microns as well as an average particle size of less than 0.1 microns. The examiner respectfully submits that this inconsistency is further evidence that one of ordinary skill in the art would be forced to undergo undue experimentation in order to practice the invention commensurate in scope with these claims.

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 6, 10-11 are rejected under 35 U.S.C. 102(b) as being anticipated by JP 08-092484 ('484).

'484 disclose a method of coating a nanoparticle or powder with various silicon-based materials (paragraphs 0026 - 0164). According to '484, the silicon precursors used to coat the powder contain at least one Si-H group and are represented by the following structural formula:



Like the instant claim set, "c" can be 2 and "a" and "b" are within the ranges as set forth in the instant claim 6.

According to '484, the powder substance can be coated with a silicone-based material at a temperature up to 300°C for 1 hour or more (paragraph 0046). The examiner respectfully submits that this meets the limitations of the instant claim 6. Like the instant claim set, the reaction may take place in the gaseous phase (pargarph 0046).

The claims are therefore anticipated by JP 08-092484 ('484).

### ***Claim Rejections - 35 USC § 103***

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 6, 10-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP 09-26871 ('871) in view of US 2002/014094 ('094).

'871 teach a method of coating a nanoparticle or powder with various silicon-based materials (paragraphs 0018 - 0051). The nanoparticles may be metal, organic

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pigment, or inorganic pigment (paragraphs 0027 –0028). According to '871, the silicon precursors used to coat the powder contain at least one Si-H group and are represented by the following structural formula Claim 4 and paragraph 0018):



Like the instant claim set, "c" can be 2 and "a" and "b" are within the ranges as set forth in the instant claim 6.

According to '871, the powder substance can be coated with a silicone-based material at a temperature of about 400°C (paragraph 0046). Although '871 teach that the powder may be heated to a temperature of about 400°C, '871 is silent with respect to the amount of time said powder should be heated.

However, '094 teaches the advantages of heating the powder-particles at a temperature between 200°C - 500°C for a time period between 30 minutes to 4 hours. Like the instant claim set, said particles may be heat treated in an atmosphere of inert gas (paragraph 0101). As taught by '094, heating the powder-particles at a temperature of 200°C - 500°C for a time period between 30 minutes to 4 hours has the benefit of increasing the heat resistance, adhesion, and insulation of said particles (paragraph 0101). Because, as set forth in '094, heating the powder-particles at a temperature of 200°C - 500°C for a time period between 30 minutes to 4 hours has the benefit of increasing the heat resistance, adhesion, and insulation of said particles, one of ordinary skill in the art would have been motivated heat the particles advanced by '871

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to a temperature of 200°C - 500°C for a time period between 30 minutes to 4 hours. Again, according to '871, the powder substance can be coated with a silicone-based material at a temperature of about 400°C. The examiner respectfully submits that '094 provide the requisite motivation to heat said particles for a time period between 30 minutes to 4 hours. Based on the teachings of '094, there is a reasonable expectation that heating the powder-particles at a temperature of 200°C - 500°C for a time period between 30 minutes to 4 hours would effectively modulate the heat resistance, adhesion, and insulation of said particles. As such, it would have been obvious to one of ordinary skill in the art at the time the invention was made to heat the particles advanced by '871 to a temperature of 200°C - 500°C for a time period between 30 minutes to 4 hours in view of teachings of '084.

### ***Response to Arguments***

Applicant's arguments with respect to claims 6-8, 10-11 have been considered but are moot in view of the new ground(s) of rejection.

### ***Correspondence***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to David L. Vanik whose telephone number is (571) 272-3104. The examiner can normally be reached on Monday-Friday 8:30 AM - 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Woodward, can be reached at (571) 272-8373. The fax phone

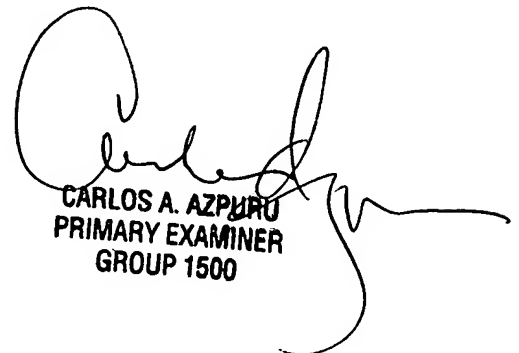


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number for the organization where this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

David Vanik, Ph.D.  
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A handwritten signature in black ink, appearing to be 'D. Vanik', written in a cursive style.A handwritten signature in black ink, appearing to be 'Carlos A. Azpuru', written in a cursive style.

CARLOS A. AZPURU  
PRIMARY EXAMINER  
GROUP 1500